

## USES OF A GRAIN OF CORN

### MULTITUDE OF BY-PRODUCTS WHICH SCIENCE EXTRACTS FROM IT.

#### A Food for Man and Beast and a Staple in Great Manufacturing Processes.

BOSTON, April 25.—Although health foods for humanity are some of the most widely advertised, there are also what might be called, without any great stretch of the imagination, health foods for animals. Some of the most important are by-products in the series of chemical operations that are constantly turning millions of kernels of corn into starch and glucose—the first product serving humanity, to the tune of many thousands tons yearly, in the preparation of its cotton goods, and the second eventually reaching the human stomach, in even larger quantities, through the pleasant medium of confectionery or soda water. An ordinary ear of corn contains many industrial possibilities—even including corn oil pipes, and vulcanized rubber mats for libraries and public buildings—many of which have been developed only during the last two decades. On their commercial side the total value of these products has been recently illustrated by the formation of a highly capitalized combination of the corn product interests, while, on the theoretical side, the subject forms an important field of study in theoretical laboratories, as, for example, in the starch and sugar laboratories of the Massachusetts Institute of Technology, where it was first made a matter of student investigation.

Important as are the by-products obtained from corn, the ultimate products of the corn kernel, starch and glucose, are by far the most important. Glucose, a thick, colorless syrup, is indeed very generally known, and has a very ill-deserved popular reputation as an "elixir of life" because of the fact it is not, broadly speaking, an adulterant at all, but a valuable commercial agent which accomplishes certain ends in candy making and in the preparation of soda fountain syrups without being in the least injurious. Vast quantities of it are used yearly in making confectionery, preserves and fruit syrups, partly because it is more economical than sugar, and partly, but quite as much because it is better adapted to the purpose. As a foundation material it takes any flavor successfully; but unlike sugar it doesn't crystallize out afterward and the confectionery will, therefore, keep longer in its original condition. The objection most commonly brought against glucose, that a mineral acid is used in producing it, is altogether irrational. The mineral amount of acid is not more than one pound in a thousand, and even this small amount must be quite neutralized, and so got rid of, by the very process of refining, before the glucose has reached the stage of perfection that makes it a marketable commodity.

**ELEMENTS OF THE GRAIN.**  
An ordinary kernel of corn, as it comes to the laboratory, contains a germ, or embryo plant, surrounded by a mass of cells containing albuminous matter and separate grains of starch. These elements, which practically nourish the little plant germ somewhat as a chicken is nourished in an egg, are really the elements of a perfect food, proteins—of which the white of an egg is a familiar example—containing sugar, starch and fats. Their presence is what gives the kernel of corn so many commercial possibilities. And without going into the technicalities of production—steep tubs, rolls, shakers, filter presses, starch runs, or what not—the gradual evolution of these different products is an interesting example of the power of modern chemical mechanism to extract a long list of unexpected utilities out of a single natural substance. Sun, wind, rain, air and soil store up these various utilities and modern humanity is always making new, quicker and better ways of extracting and applying them.

When the kernel of corn begins going through its transforming processes one of its first results is a separation of the germ. The embryo, separated and ground, are reduced to a pasty mass which is subjected to pressure and so divided into a clear, yellowish oil on the one hand and dry compact cakes on the other. The oil is used in the manufacture of soaps or is vulcanized, mixed with bits of cork, and so transformed into rubber mats, or bicycle tires. The dry cakes are largely exported as cattle feed, the amount of proteins which they contain making them both healthful and nutritious. What is left after the germ of the corn has been extracted continues on its way to the final and vastly more important products, starch and glucose.

**GLUTEN AND STARCH.**  
But before the corn becomes starch two other by-products are produced, the first being corn bran, or "wet feed" as it is called in factory practice, and the second gluten meal. Both of these products are cattle foods, the gluten being particularly rich in albuminous substances and used, for example, for mixing with the regular food of a dairy farm in order to improve the quality and quantity of the milk. Gluten, indeed, which in dried form becomes gluten meal and so goes to the cows, is derived from the corn during the extraction of the starch that goes to the big textile mills and there plays an important part in the weaving and dyeing of cotton fabrics, or else to the confectioners, where thousands of tons are used yearly as molds in which to cast the candy sticks, that we see so commonly at Christmas. The grape sugar, so-called, which goes to the distilleries and becomes an important factor in the brewing industry, and the concentrated, liquid glucose, that goes to the confectioners and becomes an item in the manufacture of confectionery, syrups and jellies, are both derived from starch by an elaborate chemical and refining treatment.

All these products are made by chemical reactions first carefully studied on a small scale in such theoretical laboratories as that of the Institute and then applied on a large one in big manufacturing plants. Grape sugar, so-called from its general resemblance to the sugar sometimes found on the exterior of dried grapes, is an ideal fermenting sugar and is, therefore, much used in the manufacture of sparkling ales, the gases which it gives off during fermentation producing the necessary sparkle better than any other agency. And corn is also largely used in the production of malt food and liquor, which owe their valuable properties to maltose, or malt sugar, derived by chemical transformations from the starch in grains.

**BUTLER COLLEGE NOTES.**  
The Phi Delta Theta fraternity gave a dance Friday evening at Brenneke's Academy.

Friday afternoon the Butler baseball team defeated the Silent Hoosiers by a score of 21 to 2.

Miss Ruth Webb, of Edinburgh, visited Miss Lillian and Mary Bailey Thursday at the college residence.

of Harvard, who is spending his vacation in Irvington.

Miss Charlotte Griggs is a pledged Kappa Kappa Gamma.

To-morrow afternoon on the college campus Butler was the scene of a baseball game against Danville Central Normal.

Miss Lura Forsythe, of Nineveh, spent Tuesday night with her sister, Miss Pearl Forsythe, at the college residence.

Miss Margaret Garrison, after a short visit with fraternity friends, returned to her home in Pendleton Thursday.

Miss Alice Goode entertained a few college friends Monday afternoon with a wild flower party at her home in North Indianapolis.

A "farm-house dinner" was given by the Y. M. C. A. at the co-operating clubhouse at noon on Wednesday. About eighty-two were present.

Mr. Fred Frick, who came to attend the Delta Tau Delta dance at the Propylaeum Wednesday evening, returned to his home in Peru Friday.

Mr. John L. Grove, general secretary of the Merriam-Stimms-Beaumont Medical College of St. Louis, will address the Y. M. C. A. Wednesday at their meeting.

**NEWS OF THE HIGH SCHOOLS.**  
**Shortridge Gossip.**

Nell Dornery played in Room B recently. Ruth Moorhead edited the Monday Echo last week.

Heslep Clark entertained the Whist Club Friday night.

Charlotte Dillman is again in school after a short illness.

Grace Christian has returned from a visit in Crawfordsville.

Miss Allison entertained the You-Go-It-Go girls with a slumber party recently.

Ethel Nickerson has succeeded Charles Jamison as accompanist for the Shortridge Orchestra.

Marguerite Newcomb entertained the Sigma Gamma Phi girls at her home yesterday afternoon.

The Gamma Epsilon girls gave a dance to a large number of friends Friday evening at the Propylaeum.

The Club of the Four G's of girls gave a dance last Wednesday evening at the home of Clara Lancaster.

Dr. Julia K. Sullivan, president of Rockford College, will speak to the students in the assembly hall at 9:15 a. m. on May 7.

Miss Irma Jean Woelke was hostess at a delightful party for the Do Do Club recently, the occasion being her eighteenth birthday.

The date of the entertainment by all of the Shortridge High School musical organizations has been changed to the evening of May 4. The affair is for the benefit of the musical clubs.

The Tau Phi Gamma met at the home of Miss Zella O'Hair, and discussed the coming year's campaign.

Pictures of the Shortridge speaker, Geo. M. D. Posey, in the coming state high school oratorical contest in this city on May 5, are being shown at the school.

Booker T. Washington has consented to address the students of the Shortridge High School in the near future unless prevented by lack of time. He will be in the city May 7 to attend the Flanner Guild exercises.

The proceeds from the play given a short time ago by the 103 Dramatic Club, under the direction of Miss Zella O'Hair, amounted to over \$30. It is estimated that the profits will reach \$75, which will be used to pay for the school year.

The excitement in Room C last Thursday morning, a full account of which appeared in the Journal, continues to be discussed in the halls of the S. H. S. but as yet no action in regard to the matter has been taken by Principal Hull, and as a result the erring students are experiencing an attack of insomnia until the reckoning is made at the end of the school year.

Preparations for the annual junior reception to the outgoing members of the senior class are being made. The party will be given at the Brenneke Academy on May 22.

Refreshment—Jeannette Alexander, chairman; Grace Christian, Stella Morrison, Grace Pratt, Miss Zella O'Hair, and Laville Pratt, Walter Pritchard, Paul Merrill, Harley Boyle, Lee Busch, Albert Aronson, Reception—Edith Brannon, chairman; Robert Hackney, Ryland Pratt, Alfred Brandt, Frank Davidson, Harry Block, Louise Hupp, Edith Jones, Lawrence Outland, Helen Cottrill, Catherine Smiley, Decoration—Mary Parrott, chairman; Mary Holliday, Florence Latham, Louise Milligan, Helen Caldwell, Lydia Haines, Garvin Brown, Robert Falley, George George, Frank Green, and Paul Davis.

The investigation of Senators Lodge (Edwin Friend), Jones (Myron Leckner) and Scott (Perd) has been continued. The largest attendance of the year was at the Shortridge Senate Friday.

Next Friday the defense will introduce its case and the evidence will be heard, followed by the argument of the attorneys.

**From the M. T. H. S.**  
The Oeki Wows met Wednesday with Walter Hlatt.

The Tyroleans met Friday afternoon with Miss Jeannette Wright.

Stanley Turner entertained the Raza Mats Club at its last meeting.

The Manual Training High School Science Club met to-morrow.

Friends Pink will return to school to-morrow, after an illness of several weeks.

The Colonial Maids were entertained yesterday afternoon by Miss Ethel Stitt.

Mary Reid entertained the As You Like It Club, at her home, yesterday afternoon.

The fair Senoritas, a sorority of Spanish maidens, held its last meeting with Miss Grace Matthews.

The last meeting of the Scotch Lassies, a January, 1936, society, was at the home of Miss Nellie Blair.

Max Thompson, of Muncie, who organized the school polo team known as the Reds, is again in school after a serious illness.

The Phi Delta Nus held their last meeting Thursday and initiated three new members, Mary Fitch, Jessie Prime and Jessie Good.

The pattern and foundry classes have begun the runs for a drill press. The first run was made a week ago, when 1,000 pounds of metal were cast.

The next meeting of the Buccaneers will be with Alvin Moses. This club will give a banquet on the evening of commencement to a number of young lady friends.

Charles Jennings will be the host at the next meeting of the Varsity, next Thursday night. This club will give a stag banquet after the commencement exercises on June 8.

Miss Sallie Overstreet, a former student of M. T. H. S., and now attending the Hamilton College at Lexington, Ky., and Miss Edna Larimer visited the school last week.

The Treaders, a "frat" composed largely of athletes, has issued a challenge to any club in the school for a dual meet. The Ran Cherokees will like to accept and a meet will be arranged soon.

The Z. Z. Z. Club met Thursday with Miss Florence Hosbrook. The new pins for the club have arrived and are decidedly neat and artistic, being enameled in yellow and white, the sorority colors.

**A Curious Litany.**  
London Express.

Perhaps one of the most curious collections of mural inscriptions in Ireland, where they were carved by the monks in the ancient city of Galway.

It has four gates (two are informed in a well-known work, "The Book of the Dead") inscriptions, facing, respectively, north, south, east and west, and on each was a prophetic motto. That facing north bore the words:

"From the ferocious O'Flahertys,  
Good Lord, deliver us!"

On the south gate:  
"From the devilish O'Dalys,  
Good Lord, defend us!"

On the east gate:  
"From the out-throat O'Kellys,  
Good Lord, save and keep us!"

And on the west gate:  
"From the murderous O'Maddens,  
Good Lord, preserve us!"

**A Maid Worth Having.**  
New York Tribune.

A humorous incident occurred in connection with the recent house entering epidemic in some of the up-town sections. A well-dressed maid, who had just had an appointment with Mr. Blank,

and he told her when he left the morning that he would not be back before

## A ROYAL FAVORITE



For ten years Mathilda Kolesnikova was the

of Russia's favorite. She is an actress and

has four children. The czar is said to have

simply provided for her.

evening, so perhaps you had better see

him at his office.

"I saw him after he left here and he

told me he would without doubt meet

me here at this hour, so I'll just wait for

him, taking a newspaper from his pocket.

The maid was alone in the house and ob-

durate. "No, sir, you will not wait here;

you can call him on the telephone there

or leave a note for him, but I have posi-

tive orders not to let any one wait."

No such orders had been given, but the

girl did not like the man's appearance. He

declined at last to leave a note, but he

had been discourteously treated and

should certainly inform Mr. Blank of

the conduct of his servant. That evening

when the sealed envelope left by the

unknown caller was opened by Mr. Blank

it was found to contain these words:

"Why don't you raise your maid's wages?"

She's a corker.

It was unsigned, of course, but a small

watch chain found just after the writer's

departure was a class medal from a well-

known college.

**MEANEST MAN ON EARTH.**  
He Grappled with the Tipping Prob-

lem and Fooled a Head Waiter.

New York World.

The meanest man in New York is not a

New Yorker. He is a Chicagoan. But

he boasts of his title, and this is how

he defended it a little while ago.

He came here on a two weeks' business

trip and stopped at a well-known family

hotel near Union Square.

Going up to the head waiter on the day

of his arrival he held before that function-

ary a small envelope, and said slowly and

slowly in half, he gave half of it to the

man and put the other half carefully in

his own pocket.

"I hate to be bothered tipping every-

body," said the meanest man, "so I'll make

a deal with you. I want you to see I get

the best possible service while I'm here and

every employee treats me like a prince.

Then if I'm satisfied with my treatment

I'll give you the other half of this bill

the day I leave. You can paste the halves

together and have a perfectly good bill.

Then you can pay the other employees such

tips as you think are coming to them and

pay the rest of the bill to me."

The gleam in the head waiter's eyes

showed just how much of that \$30 would

ever get past him, and once got the two

halves pasted together.

For the remainder of the two weeks the

meanest man stayed at the hotel, and

dreamed of joy. Waiters, bellboys, chamber-

maids and porters fell over each other

to do his bidding, and the head waiter

was his constant attendant, and the

head waiter's tender, watchful eye.

Whenever the meanest man entered the

dining room you would see him being

attended by the head waiter, and

Edward had dropped in for a plate of ham

and.

Well, at the end of the two weeks the

meanest man left. And as he was depart-

ing he thus addressed the expectant

waiter:

"You've treated me fine."

"Yes, sir."

"You've won that \$30 all right, all right."

"Yes, sir. Thanks."

"But you aren't going to get it."

"That half bill," went on the meanest

man, "is worth nothing to you without

the other half. Nothing at all, say, I'll

give you this Canadian 10-cent piece for

the other half."

And—the deal actually went through.

**A Memorial Thought.**

Ruth McNery Stuart, in April Century.

But they're the things I've often thought

about, Doc, that have to do, and that's

the way human creatures are everlastingly

building memorials of their sorrows. I don't

know why we should celebrate any man

we're scourged. I've often thought that

God might enjoy the novelty of having a

man rise up into the sky in joy and

thanksgiving, instead of which most of 'em

is sent up with a wall. If houses for or-

phans is needed—an 'em livin' disgrace—

that they are—but if they are, why not

build one when God sends a little child

into a home instead when He sends a

take it away? The lady that gave the "au-

thor's readin' here, she was tellin' us

about a little mournin' settlem'nt where

the young engaged couple paid for the

stained glass windows, ex love comes along,

and the young man says to the young

colored panes to stand for joy an' to fetch

the color of it into the worship. Now, that

stuck me as purty. I wish the young man

thankfulness brought into our religion, an'

less mournin'. Not that I'd take out one

sweet memorial of the dead, but I'd like

we got along further in spiritual growth

and come to realize the unimportance of

death an' the importance of livin'.

Of these things I pass away of myself.

Monuments commemoratin' personal sor-

rows is thing to selfish men. When they

stand for principle, why, that's differ-

ent. Sometimes I think the world shows

no selfishness in sorrow than it does in

anything else, anyhow.

**FAMOUS YACHT BUILDER**

"Blat" Herreshoff has built several fast yachts,

and the Reliance, recently launched at his yard,

is expected to retain the America's cup if she

is chosen as the defender.

## TOURIST IN THE CAPITAL

### THEIR BEHAVIOR NOT ALWAYS WHAT MIGHT BE EXPECTED.

With Famous Men Numerous as Blackberries Sightseers Seldom Discover Them.

Washington Letter in Philadelphia Ledger.

"Try to look imposing, my boy," said one

Washington tourist to another as they stood

in front of the Capitol one day last week.

"See those pretty tourists coming? Prob-

ably they take us for